



NASA Policy Directive

NPD 8820.3Effective Date: August 21, 2002
Expiration Date: August 21, 2007**COMPLIANCE IS MANDATORY**[Printable Format \(PDF\)](#)

Subject: Facility Sustainable Design

Responsible Office: Facilities Engineering and Real Property Division

1. POLICY

a. Facility projects planned, designed, and constructed under Agency authority or control will incorporate sustainable design principles to the maximum extent possible to reduce life-cycle costs, implement pollution-prevention principles, and minimize facility impacts on natural resources while maximizing occupant health, safety, and productivity. Sustainable design is an overarching concept, incorporating appropriate sustainable design elements into facilities planning, design, construction, operation and maintenance, to enhance and balance facility life-cycle cost, environmental impact, and occupant health, safety, security, and productivity. The essential elements of NASA's sustainable design include the following:

- (1) Energy efficiency and water conservation;
- (2) Site selection to minimize environmental and transportation impact and, if possible, to enhance the environment;
- (3) Use of sustainable materials (e.g., reused, recycled, recyclable, nontoxic, low-embodied energy content, renewable);
- (4) Emphasis on durability and efficiency of materials and equipment;
- (5) A healthy environment, not limited to indoor air quality, noise control, and natural lighting;
- (6) Features in support of enhanced worker productivity;
- (7) Design for personnel safety and security;
- (8) Design for decommissioning and disposal;
- (9) Enhanced building operation and maintenance characteristics (e.g., Design for Reliability and Maintainability, continued efficiency, and low toxicity);
- (10) A philosophy that defines integrating operations and maintenance experience into the facility acquisition process (i.e., Maintainable Design); and
- (11) A philosophy that defines facility operational objectives, then tests and verifies that all building systems and components have been properly installed, are free of latent defects, and will perform to the level intended (i.e., Continuous Building Commissioning).

b. NASA Headquarters, Facilities Engineering Division, will serve as the principal point of contact for facility sustainable design activities, will stay abreast of innovations in the field of sustainable design, and will periodically assess Agencywide progress toward implementing an effective sustainable design program.

c. Centers will move toward implementation of sustainability into the facilities acquisition process by providing the required training, ensuring that project estimates include funds required for incorporation of sustainable design principles, consistent with this NPD, and designing facilities to achieve the essential elements of sustainable design while supporting NASA's mission.

d. The extent to which sustainable design principles can be adopted will vary, based upon individual facility project concerns. Facility projects include new construction and facility revitalization (repairs, restoration, rehabilitation, and modification) and minor maintenance projects within NASA facility inventory. NASA Centers will fully implement sustainable design by Fiscal Year 2005. During the initial implementation of sustainable design initiatives, Centers will evaluate their project results, using the Leadership in Energy and Environmental Design (LEED) Green Building Rating System. For administrative buildings and laboratories, Centers should strive to achieve the Environmental

Protection Agency Energy Star designation and/or the Laboratories for the 21st Century standard.

2. APPLICABILITY

This NASA Policy Directive (NPD) applies to real estate and facilities under Agency authority or control of NASA Headquarters and NASA Centers, including facilities at sites not contiguous with primary Center locations. This NPD also applies to non-NASA-owned facilities constructed on NASA real estate to the extent specified in the governing agreements.

3. AUTHORITY

- a. 42 U.S.C. 2473(c)(1), Section 203(c)(1) of the National Aeronautics and Space Act of 1958, as amended.
- b. 42 U.S.C. 8251, et seq., National Energy Conservation Policy Act, as amended by the Energy Policy Act of 1992, Public Law 102-486, 106 Stat. 2776.
- c. 42 U.S.C. 6201, et seq., Energy Policy and Conservation Act.
- d. 48 CFR (Federal Acquisition Regulation (FAR)) Subpart 23.2, "Energy Conservation."
- e. Executive Order 13101, Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition, 3 CFR (1998 Compilation).
- f. Executive Order 13123, Greening the Government Through Efficient Energy Management, 3 CFR (1999 Compilation).
- g. Executive Order 13148, Greening the Government Through Leadership in Environmental Management, 3 CFR (2000 Compilation).

4. REFERENCES

- a. 29 U.S.C. 794 et seq., the Rehabilitation Act of 1973, as amended.
- b. 42 U.S.C. 4321 et seq., the National Environmental Policy Act of 1969, as amended.
- c. NPD 8820.2, Design and Construction of Facilities.
- d. NASA Procedures and Guidelines (NPR) 8820.2C, Facility Project Implementation Handbook.
- e. NPR 8570.1, Energy Efficiency and Water Conservation Technologies and Practices.
- f. NPR 8715.3, NASA Safety Manual.
- g. NPR 8831.2D, Facilities Maintenance Management.
- h. "NASA Reliability Centered Maintenance Guide for Facilities and Collateral Equipment," February 2000.
- i. "NASA Reliability Centered Building and Equipment Acceptance Guide," February 2001.
- j. Leadership in Energy and Environmental Design, U.S. Green Building Council.
- k. Energy Star, Environmental Protection Agency.
- l. Laboratories for the 21st Century (Labs21), U.S. Environmental Protection Agency and U.S. Department of Energy.

5. RESPONSIBILITY

a. The Director, Facilities Engineering and Real Property Division, is responsible for developing and facilitating adoption of facility sustainable design policies, procedures, and regulations, including the following:

- (1) Designating a Sustainable Design Champion to advance sustainable design initiatives Agencywide (including policy, guidance, and training), and to annually report progress toward implementing sustainable design principles on NASA facilities projects.
- (2) Recommending an appropriate LEED goal for future NASA facilities projects.
- (3) Providing technical leadership for a training course to facilitate the rapid and successful implementation of sustainable design principles throughout the Agency.
- (4) Advocating the appropriate commitment of resources to successfully implement sustainable design objectives.
- (5) Coordinating within NASA (e.g., Environmental Management Division (Code JE), Safety and Risk Management

Division (Code QS)), and other internal or external organizations, as appropriate, on policies, guidance development, and implementation on sustainable design issues.

b. NASA Institutional Program Offices (IPO) manage all aspects of operations at their respective Centers. Accordingly, IPO's are responsible for establishing facility project priorities, and advocating, encouraging, and holding Centers responsible for compliance with the essential elements of sustainable design as outlined in this NPD.

c. NASA Center Directors are responsible for the following:

(1) Designating a Sustainable Design Champion to coordinate with Headquarters and other Center Sustainable Design Champions to ensure appropriate application of sustainable design principles on all appropriate Center facilities projects.

(2) Ensuring that life-cycle-cost analyses are used when evaluating which sustainable design elements to include in facility projects and for all appropriate projects, rate the level of sustainable design, using the LEED Green Building Rating System.

(3) Ensuring that appropriate personnel obtain required training to implement sustainable design concepts for all significant facility projects.

(4) Conducting, at specified intervals, assessment of Center progress toward achieving sustainable design goals and objectives.

(5) Ensuring that the Center facilities engineering organizations involve environmental, safety, and other appropriate offices in review of proposed project designs. These offices should input ideas for sustainable design alternatives. Proposed alternatives must include consideration of life-cycle-cost impacts.

6. DELEGATION OF AUTHORITY

None.

7. MEASUREMENTS

Centers shall provide sustainable design self assessments when requested by the NASA Sustainable Design Champion. Centers will assess their progress by meeting the essential elements of NASA's sustainable design, following the self-assessment metrics established in NPR 8820.2C, Facility Project Implementation Handbook.

8. CANCELLATION

None.

/s/ Sean O'Keefe
Administrator

ATTACHMENT A: (TEXT)

None.

(URL for Graphic)

None.

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